

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 P. M., E.D.T., SEPTEMBER 19, 1976.

202-426-8787

ISSUED: September 19, 1976.

Forwarded to:

Honorable John L. McLucas
Administrator
Federal Aviation Administration
Washington, D. C. 20591

} SAFETY RECOMMENDATION(S)

} A-76-122 through 128

The National Transportation Safety Board continues to be concerned about the number of accidents that occur in low visibility environments during the completion of an instrument landing system approach. Because of that concern, the Safety Board conducted a study¹ of flightcrew coordination procedures which are applicable during the approach and landing phase, and particularly applicable during the visual transition period of instrument flight when flightcrews transfer their attention to visual cues for flightpath guidance. The 1970 through 1975 air carrier and supplemental air carrier ILS accident and incident data were examined to assess these procedures and flightcrew performance during the execution of these procedures.

The accident and incident data disclosed that almost every mishap occurred after the flightcrew had seen either the ground, the airport, or the runway environment and was trying to transition from instrument to visual flight procedures.

The study found that low visibilities compromised the quality and reliability of the visual cues on which the pilot flying relies for vertical guidance; therefore, only timely and proper integration of flight instrument data into the flight can detect or prevent undesired excursions from the correct flightpath. Consequently, continuous monitoring of the aircraft's flight instruments is necessary from the outer marker (OM) to landing, and the duty to monitor these instruments should be assigned as a specific task to a specific crewmember.

There were several approaches during which callouts of visual contact, either authorized or unauthorized in the carrier's procedures, resulted in premature abandonments of instrument flight procedures. The evidence disclosed that instrument flight procedures should be maintained to the

1/ NTSB AAS 76-5, "Flightcrew Coordination Procedures in Air Carrier Instrument Landing System Accidents."

lowest possible altitudes commensurate with the approach procedure. Callouts which can result in a premature abandonment of instrument procedures should be prohibited. Sighting calls should be limited to visual acquisition of the airport, the approach lights, runway lights, or the runway, particularly during a nonprecision approach. The study found further that within each individual carrier's procedures, altitude callouts for both visual and instrument approaches should be standardized.

Evidence gathered during the study disclosed that greater use of the autopilot approach coupler will augment instrument approach safety. Depending upon the reliability of the ILS facility, if sufficient visual cues exist to continue the approach, the autopilot should remain engaged until its minimum certified altitude has been reached. Secondly, the efficiency of the autopilot-coupler and automatic landing systems would be enhanced if air traffic control procedures were adopted which would insure that the flightcrew be released from all airspeed restrictions at least 3 to 4 miles outside the OM on ILS approaches conducted in instrument meteorological conditions.

Though the Safety Board could reach no conclusions regarding the use of the heads-up instrument display (HUD) in the low visibility environment, we believe that study and evaluation of this instrument system, as well as other types of advanced landing and instrumentation systems, should be continued; therefore, we endorse FAA's current project to evaluate and determine the role of HUD.

As a result of this study, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Expedite evaluation and developmental programs for advanced landing systems. (Class II - Priority Followup) (A-76-122)

Institute procedures which require air traffic controllers to release an aircraft from all airspeed restrictions at least 3 to 4 miles outside of the outer marker on all ILS approaches when the reported weather is below basic VFR minima. (Class II - Priority Followup) (A-76-123)

... In conjunction with the air carriers:

Implement flightcrew coordination procedures which will insure continuous monitoring of the aircraft's instruments from the OM to landing. The wording of monitoring tasks should be specific. Flightcrew procedures which require a transfer or exchange of visual scanning responsibilities should require that the appropriate crewmember announce that he is relinquishing previously assigned duties or responsibilities. (Class III - Longer Term Followup) (A-76-124)

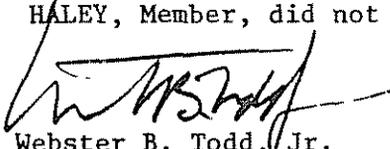
Develop flightcrew coordination procedures which will limit sighting callouts to those visual cues which are associated with the runway environment. Unrequired callouts which can result in the premature abandonment of instrument procedures should be prohibited. (Class III - Longer Term Followup) (A-76-125)

Develop a standard flightcrew coordination procedure within each carrier for altitude callouts to be used on all approaches under all conditions. (Class II - Priority Followup) (A-76-126)

Encourage flightcrews to keep the autopilot-coupler engaged until its minimum certified altitude has been reached. (Class II - Priority Followup) (A-76-127)

Include in air carrier training programs flightcrew discussions of formal reports involving approach and landing accidents or incidents. Special emphasis should be placed on those mishaps involving human limitations. (Class III - Longer Term Followup) (A-76-128)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS and HOGUE, Members, concurred in the above recommendations. HALEY, Member, did not participate.


By: Webster B. Todd, Jr.
Chairman

THIS RECOMMENDATION WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.